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Determining the Efficacy of Mental Health Awareness Interventions in Sport Using a Systematic Review

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Discipline

Medicine [D23]

Sub-discipline

Preventive Medicine [SD-MD-24]

Academic Level

Postgraduate

Contributor Biographies

Dr. Stephen Shannon is a Lecturer at Ulster University, and his research is focused on mental health promotion ~~within~~through exercise and sport.

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Published Articles

Shannon, S., Breslin, G., Haughey, T., Sarju, N., Neill, D., Lawlor, M., & Leavey, G. (2019).

Predicting student-athlete and non-athletes' intentions to self-manage mental health: Testing an integrated behavior change model. *Mental Health & Prevention*, 13, 92–99.

Shannon, S., Brennan, D., Hanna, D., Younger, Z., Hassan, J., & Breslin, G. (2018). The effect of a school-based intervention on physical activity and well-being: A non-randomized controlled trial with children of low socio-economic status. *Sports Medicine-Open*, 4(1), Article 16.

Breslin, G., Shannon, S., Haughey, T., Donnelly, P., & Leavey, G. (2017). A systematic review of interventions to increase awareness of mental health and well-being in athletes, coaches and officials. *Systematic Reviews*, 6(1), Article 177.

Abstract

A systematic review provides a synthesis of studies on a specific topic, enabling researchers, practitioners, and policy makers to assess the current evidence base and make informed choices on viable public health interventions. This case study demonstrates our experience in conducting a systematic review that aimed to determine the effect of mental health awareness interventions among sports coaches, athletes, and officials. The review process was based on available methodological guidance, with our team registering the review protocol on PROSPERO, adopting the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, and standardizing the screening process and reporting methods. The findings led us to the conclusion that caution should be taken when interpreting and implementing present interventions that aimed to raise awareness of mental health in sport due to weak methodological quality. The article was published in the *Systematic Reviews* journal, informed sports policy in Northern Ireland, and demonstrated scientific impact by being cited in international consensus

statements on athlete mental health. Invaluable research experience was gained throughout the review, and this case study intends to provide an overview of both our positive and challenging experiences. Recommendations are provided for postgraduate researchers embarking on similar pathways.

Learning Outcomes

By the end of this case, students should be able to

- Understand the rationale for conducting a systematic review on a given topic
- Outline methodologically sound processes to underpin a systematic review
- Recognize the applied scientific, policy, and practical impact that a systematic review can bring

Case Study

Project Overview and Context

Mental health is more than the absence of illness, and defined as a state of well-being in which every individual realizes their own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (World Health Organization, 2014). Mental health issues such as depression and anxiety are among the main causes of disease burden worldwide, and the World Health Organization (2014) estimates that one in four experiences a mental illness at some point in their lives. It is therefore of public health significance that researchers and practitioners develop effective mental health interventions (Huppert, 2009). As an early-career researcher in 2014 (first author), I joined the second author, who was leading a research group aiming to understand how sport can play a role in promoting mental health (Breslin & Leavey, 2019).

For example, sport is considered ~~can be~~ a useful vehicle for the promotion of mental health awareness and support messages, because athletes are visible role models within society, and sport has already established social networks (Bauman, 2016). Indeed, in 2015, the United Kingdom Government presented a “mental health in sport” initiative in which several sport associations, including the Rugby Football Union, UK Athletics, and the Football Association, pledged support. A number of high profile athletes also began to disclose their mental health difficulties to the public in an effort to reduce stigma and increase help seeking, and sporting organizations began to acknowledge that athletes can be prone to mental health issues because of sport-specific stressors (Rice et al., 2016). These include pressure to achieve success and extended times being separated from family and friends (Breslin & Leavey, 2019), coexisting sporting and academic demands (Shannon et al., 2019), negative emotional consequences of injury (Wiese-Bjornstal, 2010), and substance misuse and relationship problems (Donohue, Miller, Crammer, Cross, & Covassin, 2007). It is through the delivery of sport-based mental health interventions that awareness of mental health concerns can increase (Breslin & Leavey, 2019), yet in 2015, scholars and sporting organizations were outlining that effective ways of achieving the delivery of these messages remained uncertain (Rice et al., 2016).

One such organization was Sport Northern Ireland (SNI), which is a government agency responsible for the management of sport in Northern Ireland. Our team were funded by SNI to provide evidence-based recommendations on how to engage the sporting community with mental health interventions. Having read extant literature and discussed a proposed program for research, we acknowledged that a systematic review would offer a robust foundation upon which to proceed. Therefore, the aim of the current case study is to describe the process involved in conducting and disseminating a systematic review that determined the effect of mental health

awareness programs among sports coaches, athletes, and officials (i.e., Breslin, Shannon, Haughey, Donnelly, & Leavey, 2017).

Section Summary

- Mental health issues present a global public health challenge.
- Sport is perceived as an effective vehicle for the promotion of mental health awareness, yet in 2015, the evidence base was not robust.
- Our team decided that a systematic review on the effect of mental health awareness interventions in sport offered a rigorous way for providing guidance to practitioners and public health policy makers.

Research Design

A systematic review is a method of screening, synthesizing, and appraising methodological qualities of a range of studies (Moher et al., 2015). Systematic reviews can therefore be applied as a lens through which stakeholders can make evidence-based decisions on the implementation of interventions (Murad, Asi, Alsawas, & Alahdab, 2016). What distinguishes systematic reviews from narrative reviews is that, in systematic reviews, a specific set of criteria and methodological tools are used for developing a study protocol, database and article screening, implementing an inclusion/exclusion criteria, and reviewing and reporting on study quality and findings. For instance, adopting the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2015) is considered good practice, and now a prerequisite for publishing in many academic journals. In the context of sport and mental health, we therefore decided that a systematic review would offer a rigorous overview on what evidence-based mental health awareness interventions existed and whether they were of suitable methodological quality for further implementation.

Section Summary

- A systematic review is a method of screening, synthesizing, and appraising methodological qualities of a range of studies.
- Systematic reviews can be used with other information to make evidence-based decisions that can underpin public health policy.

Research Practicalities

Before conducting the systematic review, it was necessary to determine whether there were ongoing or published reviews available on mental health in sport interventions. We were therefore required to conduct a scoping exercise alongside our subject librarian, and subsequently followed available methodological guidance by publishing a systematic review study protocol on PROSPERO. To conduct the review, we established a team of five researchers, and applied the following practical aids for our review: (a) registering database accounts, (b) accessing help from a librarian to standardize our keywords and searches in line with specific database indexing, (c) development of a screening tool for two researchers to assess the retrieved studies for inclusion/exclusion (see Figure 1), (d) application of critical appraisal tools for assessing study quality and risk of bias in studies with both a randomized (Deeks et al., 2003) and nonrandomized (Higgins et al., 2011) intervention design, and (e) use of the PRISMA checklist for standardizing the reporting of our methods and results (Liberati et al., 2009~~11~~).

Section Summary

- Applying validated standardized methods can help ensure the systematic review process is practical, feasible, and scientifically rigorous.

Method in Action

Together the first and second author decided on the broad keywords to be searched. The librarian and the first author then conducted a scoping search for existing similar reviews on the International Prospective Register of Systematic Reviews (PROSPERO), the Cochrane Library, and the National Institute for Health and Care Excellence evidence search. Following the knowledge that our review was indeed novel, we published the protocol on PROSPERO. The protocol was free to publish, manageable to write, and allowed us to foresee the practicalities and challenges involved in a systematic review, as discussed below.

Once the search began, our librarian guided the first author in standardizing database searches in line with the keywords and specific database indexing. We searched six electronic databases (i.e., Psychinfo, Medline [OVID interface], Scopus, Cochrane, Cinahl, and Sport Discus) and each database had a particular algorithm with truncations and MeSH terms. For example, sport was the first level of our search, and by using the term “Sport\$” in psychinfo, this indexed multiple phrases (e.g., sporting, sports, sport, sport-based, etc.). In contrast, other databases can use # and * to find multiple versions of the same word. The searching phase therefore requires close scrutiny and consideration, or else you are more likely to not retrieve some potentially relevant articles.

The next methodological challenge was screening more than 1,100 titles and abstracts in which articles were designated into a “relevant” or “irrelevant” folder in RefWorks software. To quality control the results and ensure consistency, two of the research team (T.H. and G.L., coauthors on the published article) screened 10% of the irrelevant titles and abstracts. The two authors then assessed the remaining 95 articles through a detailed full-text review using our screening tool (Figure 1). Our screening tool was aligned with our inclusion criteria on each level of analysis, that is, English language, peer-reviewed, participants, study design, outcomes, such

that the authors could, in a step-by-step process, include or exclude studies. The benefit of the screening tool was that it reminded the authors of each necessary criteria, as when screening close to 100 articles, one can understandably become a little hazy and forgetful. In the end, we included 11 interventions for synthesis, and the use of the screening tool helped ensure the screening process was efficient.

When reporting study results, the PRISMA checklist was of particular value. The checklist provided us with a step-by-step process when writing up the manuscript, and alerted us to areas that may sometimes be overlooked during reporting (e.g., risk of bias across studies, rather than solely within studies). During reporting, the most challenging methodological task was assessing the interventions for bias and quality, largely because of the variation in study-reporting styles. For instance, in a few studies, it was hard to determine participant dropout, or whether the measurement tools reported had been validated. These factors demonstrate why it is considered good practice to report studies with validated methodological tools (e.g., CONSORT or TREND guidelines).

Figure 1.

Caption: Screening tool for independent author screening.

[Insert Figure 1 here]

<Alt text: An image of a table shows a screening tool for assessing the articles.>

<Simple long description: The data shown in the table are tabulated as follows:

	YES	NO	COMMENTS
LANGUAGE Is the full paper in English?			
	Go to next question	exclude	
PEER REVIEW Has the paper been peer reviewed?			
	Downward	exclude	

	arrow		
TYPE OF STUDY Is the study described as one of the following:			
iv. Clustered randomized controlled trial			
v Non-randomized controlled trial/Quasi-experimental study			
vi Pre/Post-test study design			
	Downward arrow	exclude	
PARTICIPANTS Are the participants' children, adolescents, or adults who are considered as an athlete, leader, coach, or member within a sporting (amateur or professional) organization?			
	Downward arrow	exclude	
INTERVENTION TYPE Does the intervention contain a mental health and/or well-being training component?			
	Downward arrow	exclude	
INTERVENTION LOCATION Is the intervention within a sport setting (sport: "rule-governed, structured, competitive gross movement characterised by physical strategy, prowess and chance") (Rejeski & Brawley, 1988). Exclude if intervention is outside the domain of sport (i.e., leisure, exercise, art, music).			
	Downward arrow	exclude	
OUTCOMES Does the study report mental health AND awareness, knowledge, first aiding, fitness, intentions, action planning, self-efficacy/competence? Does the study report mental health outcomes (i.e., anxiety, depression, or subjective well-being markers).			
	Downward arrow		
INCLUDE for Follow UP			

>

Section Summary

- Screening a substantial number of articles can be aided by a team member checking procedure to ensure consistency and quality control during applying inclusion/exclusion criteria.

- The PRISMA guidelines can help guide reporting of methods and results.

Practical Lessons Learned

Librarian Support

Given the vast amount of published academic literature and intricacies within specific databases, studies, and methodological tools, it is understandable why many perceive the systematic review process as daunting. However, on reflection, a key practical recommendation is to seek help from a librarian who can provide guidance from the initial scoping exercise, to keyword searches, article storage, and access. For example, it was the subject librarian who originally proposed conducting the initial scoping exercise. This step is highly recommend as it confirmed our review was indeed novel and worth conducting as there was an absence of other reviews. I have known other researchers and PhD students who, halfway through their program, became aware that an identical systematic review to their own had just been published! Best not to describe their response!

With regard to the article searching phase, again, the librarian's guidance was great help, as they are skilled in database syntax and algorithms. Saving searches once they are complete is also important, as during the publication process, a reviewer asked us to re-run the search and update the findings from our previous search, 6 months prior. Without the saved searches, we would have had to go through the whole search and screening process again. We loved that reviewer's comment, it really made our day!

Importance of a Systematic Review Protocol

Writing and publishing a study protocol is also a sound foundation upon which to conduct a systematic review. For instance, the study protocol forced us to define our research

question from the outset (i.e., “what is the efficacy of mental health awareness programs in sport?”), and our inclusion of only scientific, rather than gray non-peer-reviewed literature (e.g., MSc dissertations, reports, case studies) had implications for our screening process. This provided a clear pathway for including peer-reviewed, published, mental health literacy and awareness programs, and excluding irrelevant, but related interventions, such as nutritional interventions for athlete eating behaviors. Registering the protocol also means that other researchers can be aware that you are leading a review in the area, and therefore not to pinch your ideas!

Teamwork and Breaks Are Crucial

During the article screening phase, taking regular breaks, excluding distractions (e.g., radio, TV, whatsapp), and allowing sufficient time to read and digest the material are highly recommended. Screening articles is a bit like a jigsaw, wherein if you try to cram it all at once, you will likely get frustrated and be more likely to miss obvious signposts. Moreover, a key lesson learned was that a systematic review would likely not be achievable without an engaged and helpful research team. For instance, on a number of occasions, the team were involved in quality controlling the included/excluded articles, and assessing the study results and risk of bias. A team effort helped us ensure consistency and rigor throughout. The team effort that served to develop and publish the systematic review also helped springboard the development of relationships, wherein the same team have continued to work in this area, and publish further research articles and book chapters.

Communication Skills

A final notable lesson learned was having the ability to communicate our findings through a critical lens. For instance, our research team disseminated the article to academic

audiences, the public through presentations, and to policy makers. In our report to our funders (SNI) (Breslin et al., 2017), lay summaries were needed, and as such, we produced several iterations and versions to the publishers. Furthermore, the principal investigator (G.B.) orally presented the findings to public audiences, and it was evident that communicating methodological rigor alongside “real world” issues can be a challenging task. For example, after the talk, a member of the audience questioned whether sport should be considered “bad for mental health.” This was a misinterpretation of our overall message, and we were able to address this query by indicating that in itself sport is not inherently bad for mental health and, when used correctly, can be positive to mental health. However, we urged caution, as some aspects of sport, such as the high stress and pressure associated with elite performance, can sometimes hinder athletes’ mental health.

The peer-review process during the article publication phase highlighted intellectually challenging, but critical, aspects in our writing that would advance the scientific field. For example, one reviewer indicated that:

“The narrative and tables read as a laundry list of findings study by study, with little information about the clinical significance of the results (i.e., the size of the effects) and corresponding biases. . .”

Responding to the reviewer’s comments and making the requisite changes in the article ultimately resulted in our team urging caution for others interpreting the positive effects of the existing programs. For example, we highlighted in our conclusions that:

“While some support was found for the programmes available, few showed methodological quality and suffered a high risk of bias . . . (and) future longitudinal studies are required with larger sample sizes of males and females,

wherein randomisation to groups is blinded, and outcomes are measured with validated measurement tools.”

Demonstrating the scientific impact and significance of our article, our conclusions were cited in a number of international consensus statements (Gorczyński et al., 2019), policy documents, and academic articles. It is also important to note that, as a postgraduate student at the time, the first author also saw the value in being mentored by senior researchers in the overall communication of the research. Overall, and in reflection, a methodical and team effort is recommended during systematic reviews, and can help ensure consistency, transparency, and allow for clear dissemination of findings further down the line.

Section Summary

- Researchers can seek help and guidance from an informed librarian who is skilled and knowledgeable in keyword syntax and database algorithms.
- A team effort to article screening and quality control checks is advised.
- Communicating systematic reviews to multiple audiences can be challenging, but is a necessary means for ensuring the research has policy and public health impact.

Conclusion

To conclude, this case study described the methodology and processes involved in conducting and disseminating a systematic review that determined the effect of mental health awareness programs among sports coaches, athletes, and officials (Breslin et al., 2017). On reflection, our experience highlighted that researchers can benefit from (a) seeking support from an informed librarian who is knowledgeable in keyword syntax and database algorithms, (b) writing and publishing a study protocol to underpin the systematic process, (c) conducting quality control checks for article screening, (d) applying methodological validated tools for study

assessments and reporting methods, and (e) communicating findings to multiple academic, policy, and public audiences. While recognizing that every systematic review will be a unique experience for researchers, the aspiration is that this case study can provide some generic guidelines and practical considerations for postgraduate studies about to embark on similar journeys. We also look forward to re-running our search terms in the near future to identify updates in this area and inform the field of the developments from our initial review process. If more studies accumulate with validated outcome measures, it is intended that we will conduct a meta-analysis of the existing programs.

Section Summary

- A systematic review should be a carefully considered and rigorous piece of research.
- Systematic reviews have potential to be impactful in academic, public health policy, and practical spheres.

Classroom Discussion Questions

1. What is a systematic review and what are its advantages for researching a topic?
2. How can a team effort be used to help quality control the systematic review process?
3. Indicate why methodologically validated tools are valuable for researchers conducting systematic reviews.

Multiple Choice Quiz Questions

1. Writing and publishing a systematic review protocol on PROSPERO does what:
 - a. standardizes study protocols to be followed from the outset
 - b. highlights your work to the media
 - c. costs a lot of money

Correct answer: a

2. The PRISMA checklist is for what:
 - a. reporting the length of time it takes to conduct the review
 - b. specifying specific methodological aspects that authors are required to report on
 - c. ensures your article will get published

Correct answer: b

3. How can librarians help researchers during a systematic review?
 - a. they can screen the retrieved articles for inclusion/exclusion
 - b. they are skilled in database algorithms and syntax
 - c. they can write the methods

Correct answer: b

Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest.

Further Reading

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Web Resources

<https://www.crd.york.ac.uk/prospero/>

<http://www.prisma-statement.org/>

<https://systematicreviewsjournal.biomedcentral.com/>

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